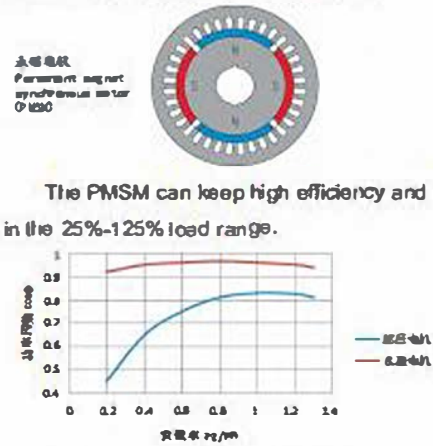
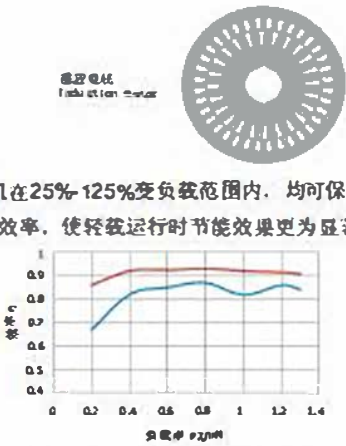


永磁同步电机概述

Basic knowledge for Permanent Magnet Synchronous Motor

1、永磁电机定子和感应电机类似，不同的是产生机械能和电能转换所需要的气隙磁场，感应电机由电机绕组内通以电流来产生，而永磁电机利用转子上的永磁体来产生磁场，因此不需要无功励磁电流，减少了定子电阻损耗和转子电阻损耗，可显著提高电机的效率和功率因数。

The stator of PMSM is similar to induction motors', the difference is the air gap magnetic field of them which converted between mechanical and electrical energy. The induction motors use current through winding to generate it, but PMSM use permanent magnet on rotor. Because of no reactive excitation current, PMSM can significantly improve the efficiency and power factor.



3、对于变频驱动永磁同步电机，由于不需要普通异步电机的转子端环、导条，因此转子的设计更为灵活，在保证更高的功率输出和可靠性的前提下，体积可减小到YE3系列相应规格的缩小两个中心高。

Without end ring and guide on rotor of asynchronous motor, rotor design is more flexible for variable frequency PMSM that is available up to two frame sizes smaller motor with high output motor and reliability comparing with YE3 series.

4、由于永磁同步电机的功率因数不受电机极数的影响，因此可以设计成大极数(如40极以上)的永磁同步直驱电机，直接将传动系统中的减速机省去，提高了整体的传动效率。

Without the influence of motor poles on power factor, PMSM can be designed with high poles (such as 40 poles above) to straight drive motor. It can improve the efficiency of the overall transmission while omitting the reducer.



5、表贴式及表层插入式转子结构，具有工艺结构简单和转动惯量小等特点，多用于中小功率伺服电机。

The rotor of surface-mounted or surface-inserted, with the advantages of simple structure and small inertia, is usually used for the medium and small servo motor.



6、内嵌式转子结构，具有结构简单、可靠性高等特点，多用于高速永磁电机和大功率的变频永磁电机。

The embedded rotor, with the advantages of simple structure and high reliability, is usually used for high speed or high power variable frequency PMSM.



空压机用永磁一体机
PMSM for compressor



7、带启动笼的内置式转子结构，可以在无控制器的前提下自启动，系统成本低。但是转子在有限的空间内既要放置足够的永磁体来满足所需的磁通，又要放置启动笼来满足异步启动能力，因此会造成每个细节的尺寸都很紧张，电机的体积受到限制。多用于原有电机的改造，以及需要高启动转矩和高牵入转矩等的石化、冶金、纺织等场合。

The structure of embedded rotor with start-up cage, can be used in the low cost PMSM, which can start without controller. But the motor size would be limited by nervous rotor space satisfying both enough magnet and aluminum cage. So this kind of motor is usually used for the transformation of the original motor, as well as the need for high torque and high torque, such as the petrochemical, metallurgy, textile and other occasions.



异步启动永磁同步电机
Asynchronous starting PMSM



CXYT系列异步启动超超高效永磁同步电机



CXYT Series

Asynchronous Start
Ultra Premium Efficiency
Permanent Magnet
Synchronous Motor

IE4

IC411

概述	Summary
额定功率: 1.1~315kW	Rated Power: 1.1~315kW
机座号: H90~H355	Frame Size: H90~H355
极数: 2~8 极	Poles: 2p,4p,6p,8p
防护等级: IP55	Protection Degree: IP55
绝缘等级: F	Insulation Class: F
冷却方式: IC411	Cooling Method: IC411
工作制: S1 连续工作制	Duty: S1
能效等级: GB18613-2012 1 级	Efficiency Class: IEC60034-30-1:IE4
与 YE3 系列可互换的同等机座号	With the same frame as YE3 series
H90~H160 可选择铸铝机座	Aluminum Frame: H90~H160
2 极电机建议选择 TYP 变频系列	2 poles motor, please choose TYP series



产品技术数据 Technical data(380V/50Hz)

设计值 Design value

型号 Type	功率 Power	额定电流 Current	效率 EFF.	功率因数 P.F.	额定转矩 RT	堵转转矩倍 数	失步转矩倍 数	堵转电流倍 数
	kW	A	%		N值	T_{st}/T_N	T_{max}/T_N	I_{st}/I_N
2极-同步转速 3000rpm-50Hz								
CXYT-80M1-2	0.75	1.4	83.5	0.96	2	1.2	2	9.5
CXYT-80M2-2	1.1	2.0	85.2	0.96	4	1.2	2	9.5
CXYT-90S-2	1.5	2.7	86.5	0.96	5	1.2	2	9.5
CXYT-90L-2	2.2	4.0	88.0	0.96	7	1.2	2	9.5
CXYT-100L-2	3	5.3	89.1	0.96	10	1.2	2	9.5
CXYT-112M-2	4	7.0	90.0	0.96	13	1.2	2	9.5
CXYT-132S1-2	5.5	9.6	90.9	0.96	18	1.2	2	9.5
CXYT-132S2-2	7.5	12.9	91.7	0.96	24	1.2	2	9.5
CXYT-160M1-2	11	18.8	92.6	0.96	35	1.2	2	9.5
CXYT-160M2-2	15	25.4	93.3	0.96	48	1.2	2	9.5
CXYT-160L-2	18.5	31.2	93.7	0.96	59	1.2	2	9.5
4极-同步转速 1500rpm-50Hz								
CXYT-80M1-4	0.55	1.0	83.9	0.96	4	1.2	2	9.5
CXYT-80M2-4	0.75	1.4	85.7	0.96	5	1.2	2	9.5
CXYT-90S-4	1.1	2.0	87.2	0.96	7	1.2	2	9.5
CXYT-90L-4	1.5	2.7	88.2	0.96	10	1.2	2	9.5
CXYT-100L1-4	2.2	3.9	89.5	0.96	14	1.2	2	9.5
CXYT-100L2-4	3	5.3	90.4	0.96	19	1.2	2	9.5
CXYT-112M-4	4	6.9	91.1	0.96	25	1.2	2	9.5
CXYT-132S-4	5.5	9.5	91.9	0.96	35	1.2	2	9.5
CXYT-132M-4	7.5	12.8	92.6	0.96	48	1.2	2	9.5
CXYT-160M-4	11	18.7	93.3	0.96	70	1.2	2	9.5
CXYT-160L-4	15	25.3	93.9	0.96	96	1.2	2	9.5
CXYT-180M-4	18.5	31.1	94.2	0.96	118	1.2	1.8	10
CXYT-180L-4	22	36.8	94.5	0.96	140	1.2	1.8	10
CXYT-200L-4	30	50.0	94.9	0.96	191	1.2	1.8	10
CXYT-225S-4	37	61.5	95.2	0.96	236	1.2	1.8	10
CXYT-225M-4	45	74.7	95.4	0.96	287	1.2	1.8	10
CXYT-250M-4	55	91.0	95.7	0.96	350	1.2	1.8	10
CXYT-280S-4	75	123.6	96.0	0.96	478	1.2	1.8	10
CXYT-280M-4	90	148.2	96.1	0.96	573	1.2	1.8	10
CXYT-315S-4	110	180.8	96.3	0.96	700	1.2	1.8	10
CXYT-315M-4	132	216.7	96.4	0.96	840	1.2	1.8	10
CXYT-315L1-4	160	262.1	96.6	0.96	1019	1.2	1.8	10
CXYT-315L2-4	200	327.3	96.7	0.96	1273	1.2	1.8	10
CXYT-355M1-4	220	360.1	96.7	0.96	1401	1.2	1.6	10
CXYT-355M2-4	250	409.2	96.7	0.96	1592	1.2	1.6	10
CXYT-355L1-4	280	458.3	96.7	0.96	1783	1.2	1.6	10
CXYT-355L2-4	315	515.5	96.7	0.96	2006	1.2	1.6	10

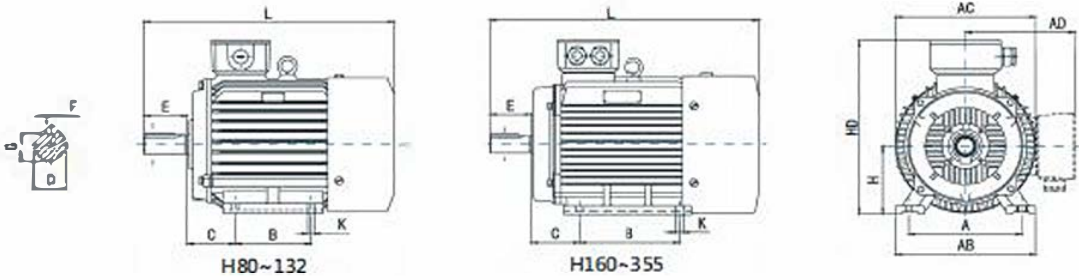
产品技术数据 Technical data(380V/50Hz)

设计值 Design value

型号 Type	功率 Power	额定电流 Current	效率 EFF.	功率因数 P.F.	额定转矩 RT	牵入转矩倍 数	失步转矩倍 数	堵转电流倍 数
	kW	A	%		N 级	T_{st}/T_N	T_{min}/T_N	I_{st}/I_N
6极-同步转速1000rpm-50Hz								
CXYT-132S-6	3	5.2	88.6	0.98	29	1.2	1.6	10
CXYT-132M1-6	4	6.9	89.5	0.98	38	1.2	1.6	10
CXYT-132M2-6	5.5	9.4	90.5	0.98	53	1.2	1.6	10
CXYT-160M-6	7.5	12.7	91.3	0.98	72	1.2	1.6	10
CXYT-160L-6	11	18.5	92.3	0.98	105	1.2	1.6	10
CXYT-180L-6	15	25.0	92.9	0.98	143	1.2	1.6	10
CXYT-200L1-6	18.5	30.7	93.4	0.98	177	1.2	1.6	10
CXYT-200L2-6	22	36.4	93.7	0.98	210	1.2	1.6	10
CXYT-225M-6	30	49.4	94.2	0.98	287	1.2	1.6	10
CXYT-250M-6	37	60.7	94.5	0.98	353	1.2	1.6	10
CXYT-280S-6	45	73.6	94.8	0.98	430	1.2	1.6	10
CXYT-280M-6	55	89.7	95.1	0.98	525	1.2	1.6	10
CXYT-315S-6	75	121.9	95.4	0.98	716	1.2	1.6	10
CXYT-315M-6	90	146.0	95.6	0.98	860	1.2	1.6	10
CXYT-315L1-6	110	178.0	95.8	0.98	1051	1.2	1.6	10
CXYT-315L2-6	132	213.2	96.0	0.98	1261	1.2	1.6	10
CXYT-355M1-6	160	257.9	96.2	0.98	1528	1.2	1.6	10
CXYT-355M2-6	185	297.8	96.3	0.98	1767	1.2	1.6	10
CXYT-355M3-6	200	322.0	96.3	0.98	1910	1.2	1.6	10
CXYT-355L1-6	220	353.4	96.5	0.98	2101	1.2	1.6	10
CXYT-355L2-6	250	401.6	96.5	0.98	2388	1.2	1.6	10
8极-同步转速750rpm-50Hz								
CXYT-132S-8	2.2	4.1	84.5	0.96	28	1.2	1.6	10
CXYT-132M-8	3	5.5	85.9	0.96	38	1.2	1.6	10
CXYT-160M1-8	4	7.3	87.1	0.96	51	1.2	1.6	10
CXYT-160M2-8	5.5	9.7	88.3	0.98	70	1.2	1.6	10
CXYT-160L-8	7.5	13.0	89.3	0.98	96	1.2	1.6	10
CXYT-180L-8	11	18.9	90.4	0.98	140	1.2	1.6	10
CXYT-200L-8	15	26.0	91.2	0.96	191	1.2	1.6	10
CXYT-225S-8	18.5	31.9	91.7	0.96	236	1.2	1.6	10
CXYT-225M-8	22	37.8	92.1	0.96	280	1.2	1.6	10
CXYT-250M-8	30	51.2	92.7	0.96	382	1.2	1.6	10
CXYT-280S-8	37	62.9	93.1	0.96	471	1.2	1.6	10
CXYT-280M-8	45	76.3	93.4	0.96	573	1.2	1.6	10
CXYT-315S-8	55	92.9	93.7	0.96	700	1.2	1.6	10
CXYT-315M-8	75	126.0	94.2	0.96	955	1.2	1.6	10
CXYT-315L1-8	90	150.9	94.4	0.96	1146	1.2	1.6	10
CXYT-315L2-8	110	183.8	94.7	0.96	1401	1.2	1.6	10
CXYT-355M1-8	132	220.1	94.9	0.96	1681	1.2	1.6	10
CXYT-355M2-8	160	266.3	95.1	0.96	2037	1.2	1.6	10

外形及安装尺寸 Mounting dimension

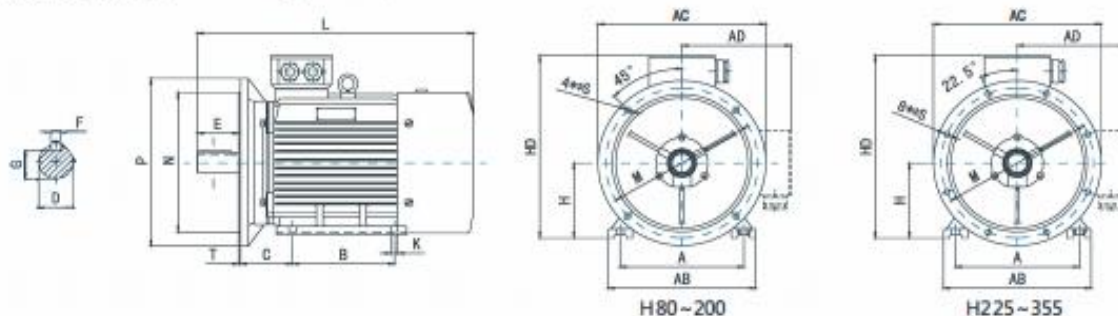
IM B3



机座 Frame	极数 Poles	安装尺寸 Mounting					轴伸尺寸 Shaft					外形尺寸 External				
		A	B	C	H	K	D	E	F	G		AB	AC	AD	HD	L
80M	≥2	125	100	50	80	10	19	40	6	15.5		165	175	145	220	306
90S	≥2	140	100	56	90	10	24	50	8	20		180	195	165	280	380
90L	≥2	140	125	56	90	10	24	50	8	20		180	195	165	280	390
100L	≥2	160	140	63	100	12	28	60	8	24		205	215	180	275	435
112M	≥2	190	140	70	112	12	38	80	8	24		230	240	190	300	470
132S	≥2	216	140	88	132	12	38	80	10	33		270	275	210	345	510
132M	≥2	216	178	88	132	12	38	80	10	33		270	275	210	345	560
160M	≥2	254	210	108	160	14.5	42	110	12	37		320	330	255	420	670
160L	≥2	254	254	108	160	14.5	42	110	12	37		320	330	255	420	700
180M	≥4	279	241	121	180	14.5	48	110	14	42.5		355	380	280	455	740
180L	≥4	279	279	121	180	14.5	48	110	14	42.5		355	380	280	455	790
200L	≥4	318	306	133	200	18.5	55	110	16	49		395	420	305	505	790
225S	≥4	356	286	149	225	18.5	60	140	18	53		435	470	335	560	830
225M	≥4	356	311	149	225	18.5	60	140	18	53		435	470	335	560	855
250M	≥4	406	349	168	250	24	65	140	18	58		490	510	370	615	915
280S	≥4	457	368	190	280	24	75	140	20	67.5		550	580	410	680	985
280M	≥4	457	419	190	280	24	75	140	20	67.5		550	580	410	680	1035
315S	≥4	508	408	216	315	28	80	170	22	71		635	645	530	845	1290
315M	≥4	508	457	216	315	28	80	170	22	71		635	645	530	845	1320
315L	≥4	508	508	216	315	28	80	170	22	71		635	645	530	845	1320
355M	≥4	610	560	254	355	28	95	170	25	86		730	710	655	1010	1530
365L	≥4	610	630	254	365	28	95	170	25	86		730	710	655	1010	1530

外形及安装尺寸 Mounting dimension

IM B35

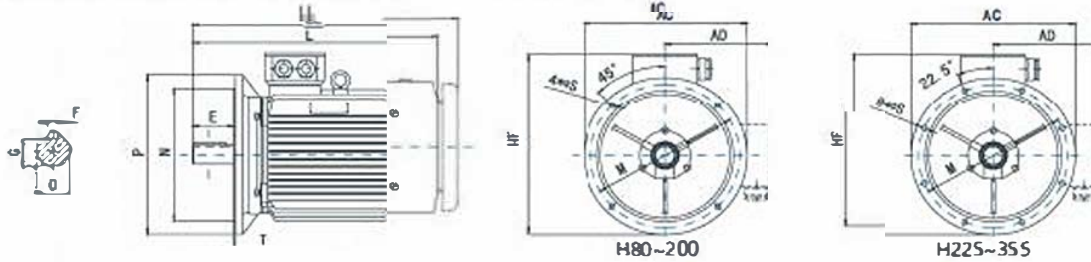


机座 Frame	级数 Poles	安装尺寸 Mounting					轴伸尺寸 Shaft				凸缘尺寸 Flange					
		A	B	C	H	K	D	E	F	G	No.	M	N	P	S	T
80M	≥2	125	100	50	80	10	19	40	6	15.5	FF165	165	130	200	12	3.5
90S	≥2	140	100	56	90	10	24	50	8	20						
90L	≥2	140	125	56	90	10	24	50	8	20						
100L	≥2	160	140	63	100	12	28	60	8	24	FF215	215	180	250	14.5	4
112M	≥2	190	140	70	112	12	28	60	8	24						
132S	≥2	216	140	89	132	12	38	80	10	33						
132M	≥2	216	178	89	132	12	38	80	10	33	FF265	265	230	300	14.5	4
160M	≥2	254	210	108	160	14.5	42	110	12	37						
160L	≥2	254	254	108	160	14.5	42	110	12	37						
180M	≥4	279	241	121	180	14.5	48	110	14	42.5	FF300	300	250	350	18.5	5
180L	≥4	279	279	121	180	14.5	48	110	14	42.5						
200L	≥4	318	305	133	200	18.5	55	110	16	49						
225S	≥4	356	286	149	225	18.5	60	140	18	53	FF400	400	350	450	18.5	5
225M	≥4	356	311	149	225	18.5	60	140	18	53						
250M	≥4	406	349	168	250	24	65	140	18	58						
280S	≥4	457	368	190	280	24	75	140	20	67.5	FF500	500	450	550	18.5	5
280M	≥4	457	419	190	280	24	75	140	20	67.5						
315S	≥4	508	406	216	315	28	80	170	22	71						
315M	≥4	508	457	216	315	28	80	170	22	71	FF600	600	550	660	24	6
315L	≥4	508	508	216	315	28	80	170	22	71						
355M	≥4	610	560	254	355	28	95	170	25	86						
355L	≥4	610	630	254	355	28	95	170	25	86	FF740	740	680	800	24	6

※外形尺寸同 IMB3 External dimensions same as IMB3

外形及安装尺寸 Mounting dimension

IM B5、IM V1



机座 Frame	极数 Poles	轴伸尺寸 Shaft				外形尺寸 External					凸缘尺寸 Flange				
		D	E	F	G	AC	AD	HF	L	LL	No.	M	N	P	S
80M	≥2	19	40	6	15.5	175	145		305						
90S	≥2	24	50	8	20	195	165		360		FF165	165	130	200	12
90L	≥2	24	50	8	20				390						
100L	≥2	28	60	8	24	215	180	245	435						
112M	≥2	28	60	8	24	240	190	265	470		FF215	215	180	250	14.5
132S	≥2	38	80	10	33	275	210	315	510						
132M	≥2	38	80	10	33				560		FF265	265	230	300	14.5
160M	≥2	42	110	12	37	330	255	385	670						
160L	≥2	42	110	12	37				700						
180M	≥4	48	110	14	42.5	380	280	430	740	800	FF300	300	250	350	18.5
180L	≥4	48	110	14	42.5				790	850					
200L	≥4	55	110	16	49	420	305	480	790	940	FF350	350	300	400	18.5
225S	≥4	60	140	16	53	470	335	535	830	905					
225M	≥4	60	140	16	53				855	935	FF400	400	350	450	18.5
250M	≥4	65	140	18	58	510	370	595	915	1015					
280S	≥4	75	140	20	67.5	580	410	650	985	1150	FF500	500	450	550	18.5
280M	≥4	75	140	20	67.5				1035	1385					
315S	≥4	80	170	22	71					1510					
315M	≥4	80	170	22	71	645	530	900		1620	FF600	600	550	660	24
315L	≥4	80	170	22	71					1620					
355M	≥4	95	170	25	86	710	655	1010		1780	FF740	740	680	800	24
355L	≥4	95	170	25	86					1780					

※ LL 尺寸与带防雨罩电机长度 LL is size of the motor length with rain hat

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